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Patent

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: )  
Allen R. Geiger )  
Serial No.: 07/926,227 )  
Filed: August 6, 1992 )  
For: Photochemical Process And System For  
Performing A Photochemical Process

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

AMENDMENT

Sir:

In response to the Office Action dated May 27, 1993, please  
amend the above-identified patent application as follows:

*C-1* | 14. (Twice Amended) A method for performing a  
photochemical reaction comprising the following steps:

- P1* introducing a first molecular substance into a chamber;  
*P1* tuning the outlet of at least one [optical parametric  
oscillator] <sup>optical parametric oscillator/laser</sup> OPOL to at least one absorption band of the first  
molecular substance; and

*B1* *10* *C* *11* directing the at least [a] one portion of the output of the optical parametric oscillator/laser [at least one optical parametric oscillator] OPOL tuned to the [at least one] absorption band of the first molecular substance into the chamber to dissociate the first molecular substance.

*B2* *12* *C* *13* *10* 18. (Once Amended) A method as defined in claim 14, wherein the step of tuning the output of the [at least one optical parametric oscillator comprises employing at least one optical parametric oscillator/laser (OPOL) including] OPOL includes an optical pump source for generating pump radiation, and an OPOL material responsive to the pump radiation to generate laser radiation and responsive to the laser radiation to generate parametric optical radiation.

*B3* *14* *22* *2* (Once Amended) A method as defined in claim 15, further comprising the steps of directing a residual first molecular substance released from the chamber into a second chamber, and directing at least a portion of the output of at least one [optical parametric oscillator/laser] OPOL tuned to [at least one] the absorption band of the first molecular substance into the second chamber to dissociate the residual molecular substance into at least two second molecular substances.

*BT*

9 25. (Twice Amended) A method as defined in claim <sup>4</sup> ~~11~~,  
wherein the wavelength of the output of the at least one optical  
parametric oscillator [OPOL] is within the region of approximately  
3.0 microns.

13 *27.* (Once Amended) A method of performing a photochemical  
reaction comprising the following steps:

*C* introducing a first molecular substance into a chamber;  
tuning the output of at least one [optical parametric  
optical parametric oscillator/laser  
oscillator] OPOL to at least one predetermined wavelength  
corresponding to at least one absorption band of the first  
molecular substance; and

*b5* altering the vibrational distribution of the at least one  
optical parametric oscillator into the first molecular substance  
and promoting molecular vibration approximately at the [at least  
one] predetermined wavelength to form a peak within the vibrational  
distribution of the first molecular substance at approximately the  
[at least one] predetermined wavelength and dissociate the first  
molecular substance.